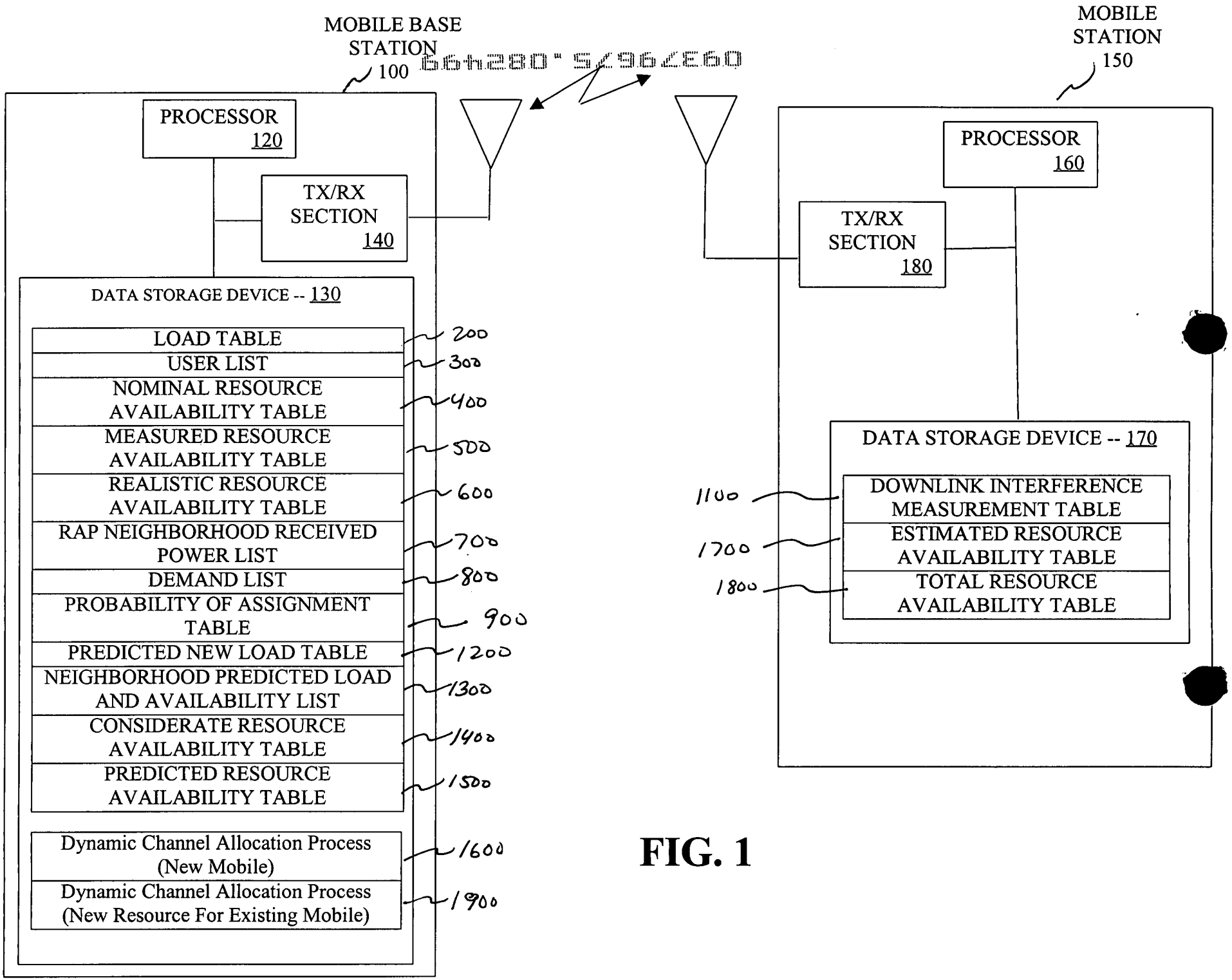
MOBILE BASE STATION
100
MOBILE STATION
150
PROCESSOR
120
TX/RX SECTION
140
DATA STORAGE DEVICE -- 130
LOAD TABLE
200
USER LIST
300
NOMINAL RESOURCE AVAILABILITY TABLE
400
MEASURED RESOURCE AVAILABILITY TABLE
500
REALISTIC RESOURCE AVAILABILITY TABLE
600
RAP NEIGHBORHOOD RECEIVED POWER LIST
700
DEMAND LIST
800
PROBABILITY OF ASSIGNMENT TABLE
900
PREDICTED NEW LOAD TABLE
1200
NEIGHBORHOOD PREDICTED LOAD AND AVAILABILITY LIST
1300
CONSIDERATE RESOURCE AVAILABILITY TABLE
1400
PREDICTED RESOURCE AVAILABILITY TABLE
1500
Dynamic Channel Allocation Process (New Mobile)
1600
Dynamic Channel Allocation Process (New Resource For Existing Mobile)
1900
PROCESSOR
160
TX/RX SECTION
180
DATA STORAGE DEVICE -- 170
1100
DOWNLINK INTERFERENCE MEASUREMENT TABLE
1700
ESTIMATED RESOURCE AVAILABILITY TABLE
1800
TOTAL RESOURCE AVAILABILITY TABLE

FIG. 1

200

ACTUAL LOAD TABLE FOR R_I			
DOWNLINK		UPLINK	
BAND	LOAD	BAND	LOAD
B_1^D	$m_{1,i}^D$	B_1^U	$m_{1,i}^U$
B_2^D	$m_{2,i}^D$	B_2^U	$m_{2,i}^U$
...	...	...	...
B_L^D	$m_{L,i}^D$	B_L^U	$m_{L,i}^U$

FIG. 2

300

ACTUAL USER LIST FOR R_i								
	DOWNLINK				UPLINK			
MOBILE ID	B_1^D	B_2^D	...	B_L^D	B_1^U	B_2^U	...	B_L^U
M_1	$C_{1,1}^{i,D}$	$C_{1,2}^{i,D}$	...	$C_{1,L}^{i,D}$	$C_{1,1}^{i,U}$	$C_{1,2}^{i,U}$	...	$C_{1,L}^{i,U}$
M_2	$C_{2,1}^{i,D}$	$C_{2,2}^{i,D}$	...	$C_{2,L}^{i,D}$	$C_{2,1}^{i,U}$	$C_{2,2}^{i,U}$	...	$C_{2,L}^{i,U}$
...			...				...	
M_K	$C_{K,1}^{i,D}$	$C_{K,2}^{i,D}$	...	$C_{K,L}^{i,D}$	$C_{K,1}^{i,U}$	$C_{K,2}^{i,U}$	...	$C_{K,L}^{i,U}$

FIG. 3

NOMINAL RESOURCE AVAILABILITY TABLE 400 FOR R_i			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$a_{1,i}^{D,nom}$	B_1^U	$a_{1,i}^{U,nom}$
B_2^D	$a_{2,i}^{D,nom}$	B_2^U	$a_{2,i}^{U,nom}$
...	...	...	...
B_L^D	$a_{L,i}^{D,nom}$	B_L^U	$a_{L,i}^{U,nom}$

FIG. 4

MEASURED RESOURCE AVAILABILITY TABLE 500 FOR R_i			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$a_{1,i}^{D,mrd}$	B_1^U	$a_{1,i}^{U,mrd}$
B_2^D	$a_{2,i}^{D,mrd}$	B_2^U	$a_{2,i}^{U,mrd}$
...	...	...	...
B_L^D	$a_{L,i}^{D,mrd}$	B_L^U	$a_{L,i}^{U,mrd}$

FIG. 5

REALISTIC RESOURCE AVAILABILITY TABLE 600 FOR R_i			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$a_{1,i}^{D,real}$	B_1^U	$a_{1,i}^{U,real}$
B_2^D	$a_{2,i}^{D,real}$	B_2^U	$a_{2,i}^{U,real}$
...	...	...	...
B_L^D	$a_{L,i}^{D,real}$	B_L^U	$a_{L,i}^{U,real}$

FIG. 6

RAP Neighborhood Received Power List 700 for R_i	
RAP ID	**Received Power Level**
R_{i1}	$P_{i \leftarrow 1}$
R_{i2}	$P_{i \leftarrow 2}$
...	...
R_{iJ}	$P_{i \leftarrow J}$

FIG. 7

DEMAND LIST 800 FOR R_I		
MOBILE ID	# OF REQUESTED RESOURCES	LOCATION IN QUEUE
M_1	λ_1^D, λ_1^U	X_1
M_2	λ_2^D, λ_2^U	X_2
...	...	...
M_K	λ_K^D, λ_K^U	X_K

FIG. 8

PROBABILITY OF ASSIGNMENT TABLE 900 FOR R_i			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$p_{1,i}^D$	B_1^U	$p_{1,i}^U$
B_2^D	$p_{2,i}^D$	B_2^U	$p_{2,i}^U$
...	...	...	...
B_L^D	$p_{L,i}^D$	B_L^U	$p_{L,i}^U$

FIG. 9

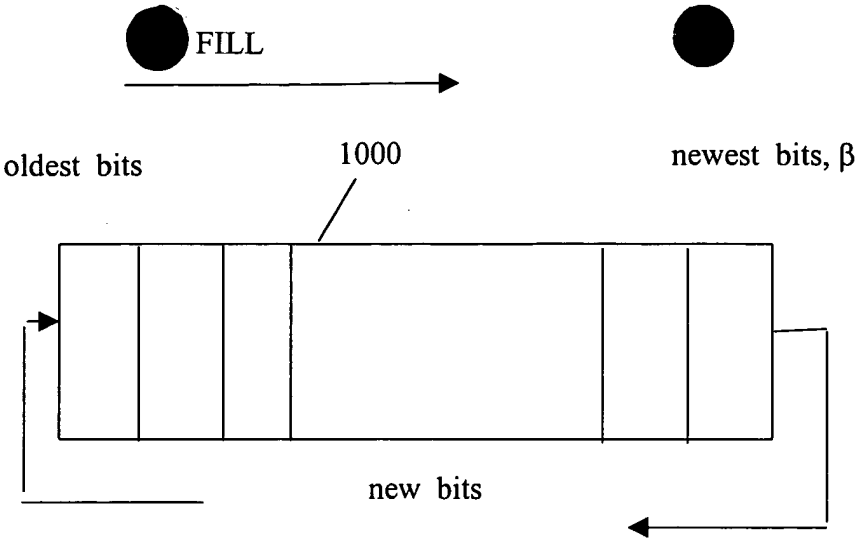

FIG. 10

MOBILE DOWNLINK INTERFERENCE MEASUREMENT TABLE 1100	
BAND	MEASURED INTERFERENCE LEVEL
B_1^D	$I_{1,k}^D$
B_2^D	$I_{2,k}^D$
...	...
B_L^D	$I_{L,k}^D$

FIG. 11

PREDICTED NEW LOAD TABLE 1200 FOR R_i			
DOWNLINK		UPLINK	
BAND	PREDICTED LOAD	BAND	PREDICTED LOAD
B_1^D	$\mu_{1,i}^D$	B_1^U	$\mu_{1,i}^U$
B_2^D	$\mu_{2,i}^D$	B_2^U	$\mu_{2,i}^U$
...	...	...	...
B_L^D	$\mu_{L,i}^D$	B_L^U	$\mu_{L,i}^U$

FIG. 12

RAP Neighborhood Predicted Load and Availability List 1300 for R_i		
RAP ID	**Predicted Load**	**Real Availability**
R_{i1}	$\mu_{l,i1}^{D}, \mu_{l,i1}^{U} \forall l$	$a_{l,i1}^{D,real}, a_{l,i1}^{U,real} \forall l$
R_{i2}	$\mu_{l,i2}^{D}, \mu_{l,i2}^{U} \forall l$	$a_{l,i2}^{D,real}, a_{l,i2}^{U,real} \forall l$
...	...	...
R_{iJ}	$\mu_{l,iJ}^{D}, \mu_{l,iJ}^{U} \forall l$	$a_{l,iJ}^{D,real}, a_{l,iJ}^{U,real} \forall l$

FIG. 13

CONSIDERATE RESOURCE AVAILABILITY TABLE 1400 FOR R_i			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$a_{1,i}^{D,con}$	B_1^U	$a_{1,i}^{U,con}$
B_2^D	$a_{2,i}^{D,con}$	B_2^U	$a_{2,i}^{U,con}$
...	...	...	...
B_L^D	$a_{L,i}^{D,con}$	B_L^U	$a_{L,i}^{U,con}$

FIG. 14

PREDICTED RESOURCE AVAILABILITY TABLE 1500 FOR R_i			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$a_{1,i}^{D,pred}$	B_1^U	$a_{1,i}^{U,pred}$
B_2^D	$a_{2,i}^{D,pred}$	B_2^U	$a_{2,i}^{U,pred}$
...	...	...	...
B_L^D	$a_{L,i}^{D,pred}$	B_L^U	$a_{L,i}^{U,pred}$

FIG. 15

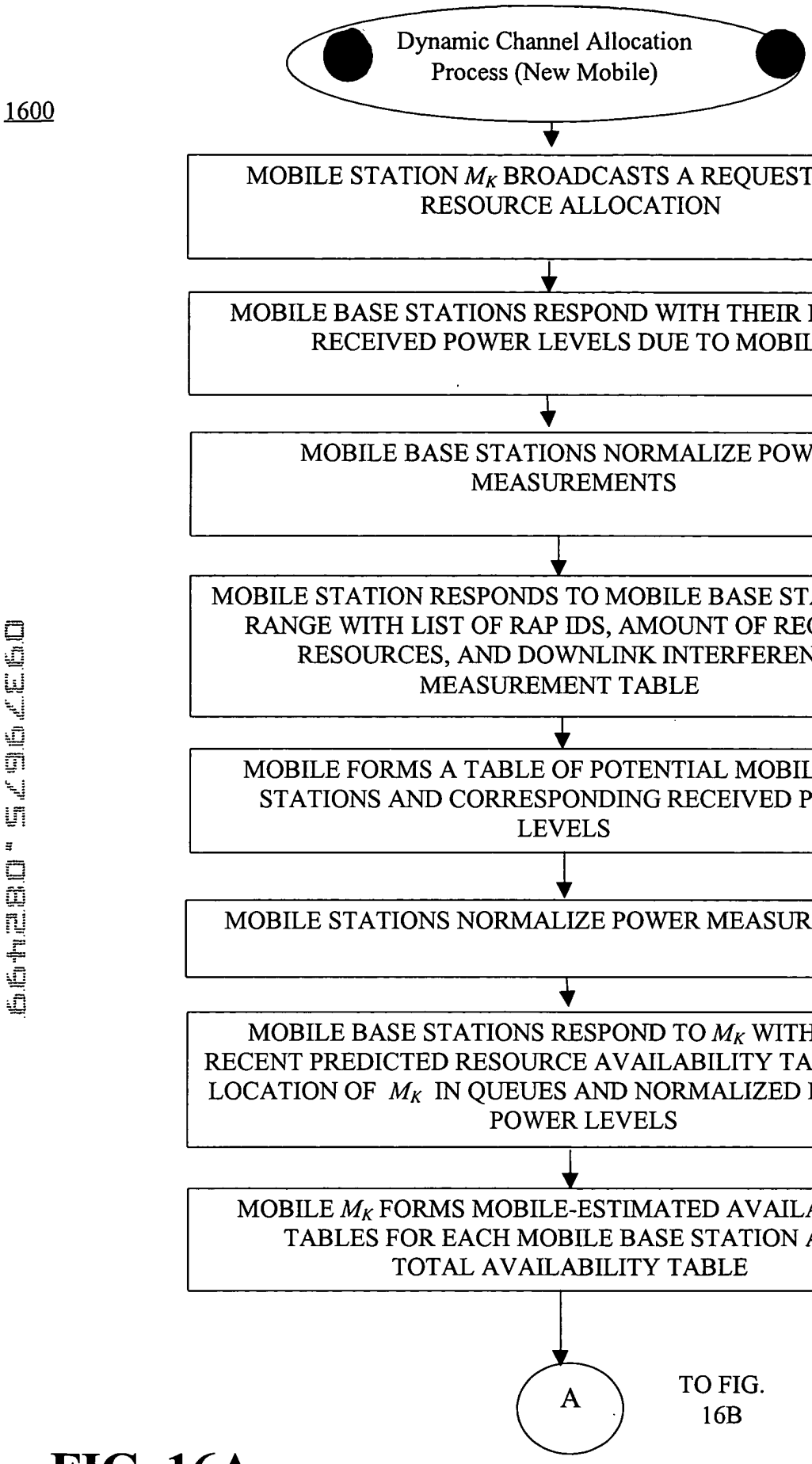
1600
Dynamic Channel Allocation Process (New Mobile)
MOBILE STATION M_K BROADCASTS A REQUEST FOR A RESOURCE ALLOCATION 1605
MOBILE BASE STATIONS RESPOND WITH THEIR ID'S AND RECEIVED POWER LEVELS DUE TO MOBILE 1610
MOBILE BASE STATIONS NORMALIZE POWER MEASUREMENTS 1615
MOBILE STATION RESPONDS TO MOBILE BASE STATIONS IN RANGE WITH LIST OF RAP IDS, AMOUNT OF REQUIRED RESOURCES, AND DOWNLINK INTERFERENCE MEASUREMENT TABLE 1620
MOBILE FORMS A TABLE OF POTENTIAL MOBILE BASE STATIONS AND CORRESPONDING RECEIVED POWER LEVELS 1625
MOBILE STATIONS NORMALIZE POWER MEASUREMENTS 1630
MOBILE BASE STATIONS RESPOND TO M_K WITH MOST RECENT PREDICTED RESOURCE AVAILABILITY TABLES, THE LOCATION OF M_K IN QUEUES AND NORMALIZED RECEIVED POWER LEVELS 1635
MOBILE M_K FORMS MOBILE-ESTIMATED AVAILABILITY TABLES FOR EACH MOBILE BASE STATION AND TOTAL AVAILABILITY TABLE 1640
A
TO FIG. 16B

FIG. 16A

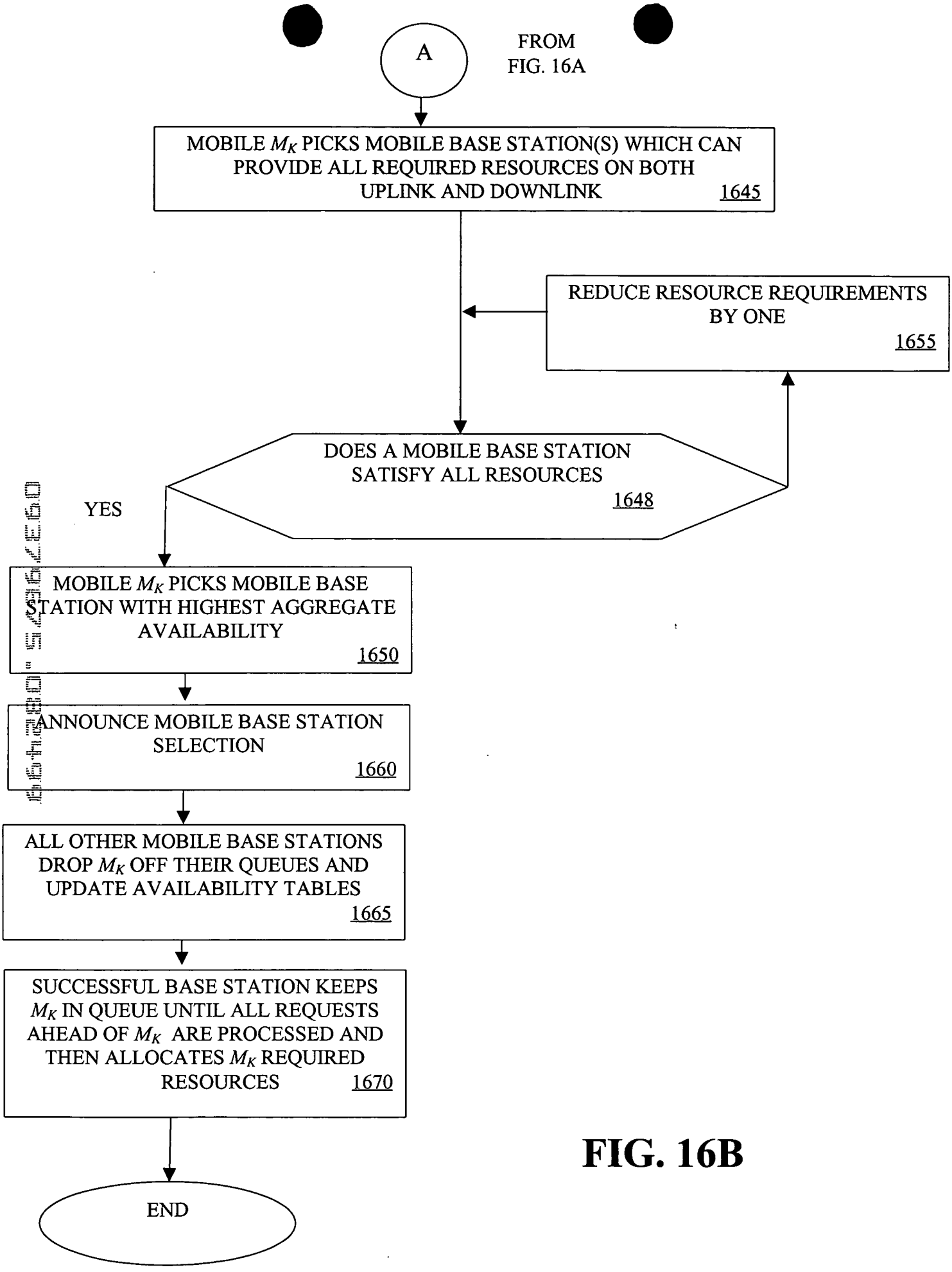
A
FROM FIG. 16A
MOBILE M_K PICKS MOBILE BASE STATION(S) WHICH CAN PROVIDE ALL REQUIRED RESOURCES ON BOTH UPLINK AND DOWNLINK 1645
REDUCE RESOURCE REQUIREMENTS BY ONE 1655
DOES A MOBILE BASE STATION SATISFY ALL RESOURCES 1648
YES
MOBILE M_K PICKS MOBILE BASE STATION WITH HIGHEST AGGREGATE AVAILABILITY 1650
ANNOUNCE MOBILE BASE STATION SELECTION 1660
ALL OTHER MOBILE BASE STATIONS DROP M_K OFF THEIR QUEUES AND UPDATE AVAILABILITY TABLES 1665
SUCCESSFUL BASE STATION KEEPS M_K IN QUEUE UNTIL ALL REQUESTS AHEAD OF M_K ARE PROCESSED AND THEN ALLOCATES M_K REQUIRED RESOURCES 1670
END

FIG. 16B

MOBILE-ESTIMATED RESOURCE AVAILABILITY TABLE 1700 FOR R_i BY M_k			
DOWNLINK		UPLINK	
BAND	AVAIL.	BAND	AVAIL.
B_1^D	$a_{1,i}^{D,MobEst}$	B_1^U	$a_{1,i}^{U,MobEst}$
B_2^D	$a_{2,i}^{D,MobEst}$	B_2^U	$a_{2,i}^{U,MobEst}$
...	...	...	...
B_L^D	$a_{L,i}^{D,MobEst}$	B_L^U	$a_{L,i}^{U,MobEst}$

FIG. 17

MOBILE TOTAL RESOURCE AVAILABILITY TABLE 1800 FOR M_k			
DOWNLINK		UPLINK	
RAP	AVAIL.	RAP	AVAIL.
R_1	$a_i^{D,total}$	R_1	$a_i^{U,total}$
R_2	$a_i^{D,total}$	R_2	$a_i^{U,total}$
...	...	...	...
R_N	$a_i^{D,total}$	R_N	$a_i^{U,total}$

FIG. 18

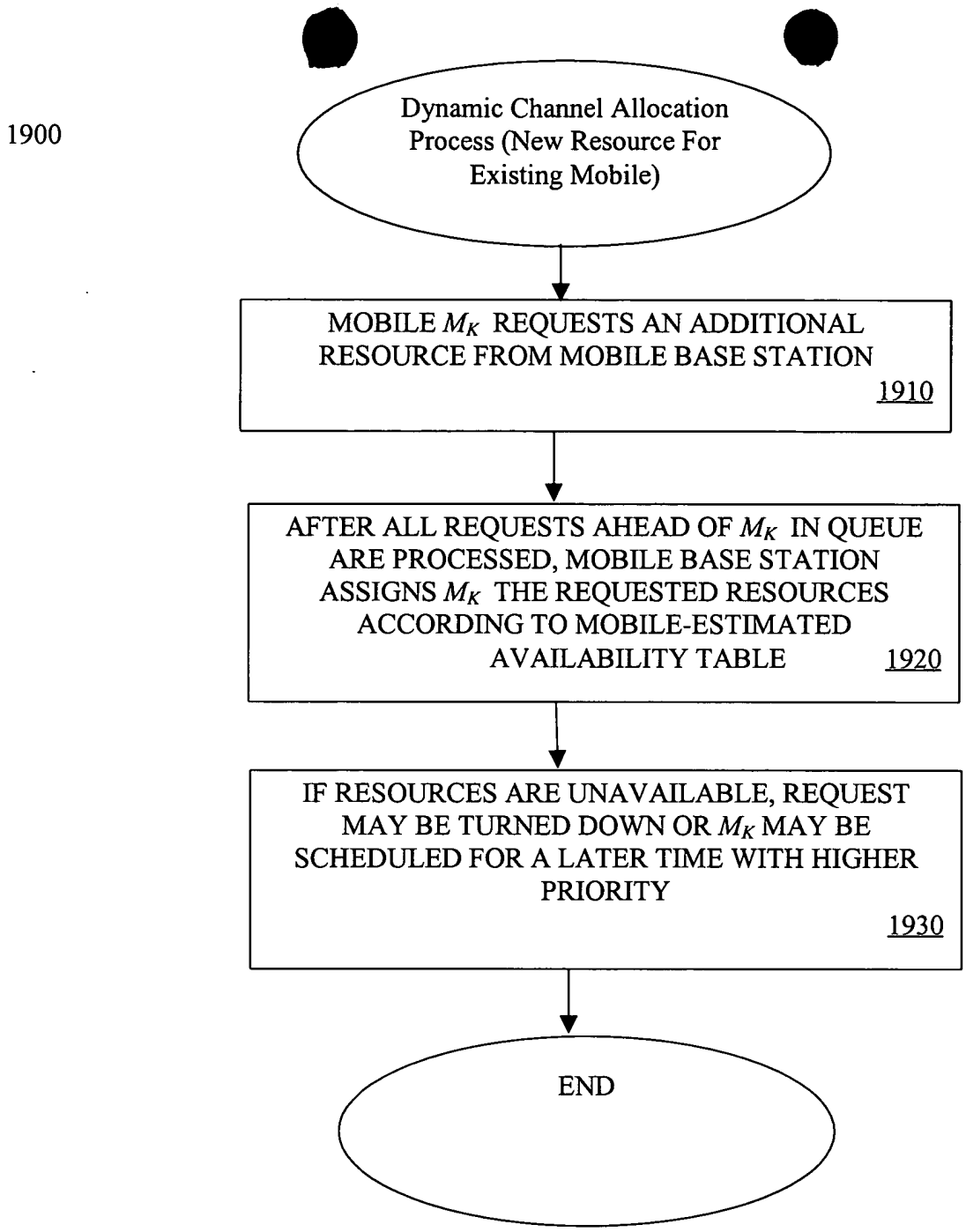
1900
Dynamic Channel Allocation Process (New Resource For Existing Mobile)
MOBILE M_K REQUESTS AN ADDITIONAL RESOURCE FROM MOBILE BASE STATION
1910
AFTER ALL REQUESTS AHEAD OF M_K IN QUEUE ARE PROCESSED, MOBILE BASE STATION ASSIGNS M_K THE REQUESTED RESOURCES ACCORDING TO MOBILE-ESTIMATED AVAILABILITY TABLE
1920
IF RESOURCES ARE UNAVAILABLE, REQUEST MAY BE TURNED DOWN OR M_K MAY BE SCHEDULED FOR A LATER TIME WITH HIGHER PRIORITY
1930
END

FIG. 19